

**BY ORDER OF THE COMMANDER
1ST SPECIAL OPERATIONS WING
(AFSOC)**

HURLBURT FIELD INSTRUCTION 91-202

3 JUNE 2014



Safety

EXPLOSIVE TRAINING RANGE

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Lt Col Jason J. Loschinsky)

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This publication implements Air Force Policy Directive 91-2, *Safety Programs*. This publication applies to all base and tenant agencies performing training demolition operations on the Hurlburt Field Explosive Training Range. All base and tenant agencies engaged in range operations are responsible for compliance with this publication and applicable procedures. The Privacy Act of 1974 applies to this instruction. This publication does not apply to the Air National Guard.

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SUMMARY OF CHANGES

This instruction is substantially revised and must be completely reviewed. Agencies must use TNT equivalencies to calculate Net Explosive Weight. A table of TNT equivalencies can be found on Attachment 7 of this document. Agencies are no longer required to provide 1 SOCES/CED with their unit explosive operating instructions. This document outlines all authorized procedures on the Hurlburt Field Explosive Training Range. Abbreviations and acronyms have been added.

1. Responsibilities.

1.1. The 1 SOCES/CED Explosive Ordnance Disposal (EOD) Flight controls access to the range. All agencies will schedule the range via unit email at 1SOCES.CEDEOD@HURLBURT.af.mil and contact 1 SOCES/CED operations section at (850) 884-7193 to preclude scheduling conflicts.

1.2. Other agencies, military or federal services that frequently (more than once a year) performs explosive operations on Hurlburt Field are required to implement a support agreement IAW DODI 4000.19, *Interservice and Intergovernmental Support*. This requirement applies to using the Hurlburt Field EOD demolition range. All requests for one-time or emergency use will be routed through the Wing Explosive Safety office to the 1 SOW/CC for approval.

1.3. Agencies utilizing the Hurlburt Field Explosive Training Range must provide 1 SOCES/CED with the following: a sequence of events, to include a listing of all munitions to be used during the range operation for approval (Attachment 3), an Operational Risk Management assessment (Attachment 4), and Explosives Operations Order (OPORD) (Attachment 5).

1.4. Agencies must sign out a range gate key and radio from 1 SOCES/CED operations. 1 SOCES/CED does not provide flags or other required equipment unless agencies coordinate with 1 SOCES/CED operations section. Units using the range to conduct explosive operations with all categories of explosives will review this operating instruction annually. Units not in compliance will be unable to sign for use of the Hurlburt Field Explosive Training Range. Units accept responsibility and compliance with procedures upon signing for the range.

1.5. All agencies will restrict movement and operations to the approved and cleared demolitions area, cleared and maintained access roads, and the identified bunker/training area. Movement and operations in wooded areas is prohibited. These restrictions are based on a Memorandum of Agreement between the Florida Department of Environmental Protection and Hurlburt Field. The purpose of this agreement is to ensure that the wetland area surrounding the Hurlburt Field Explosive Training Range will be protected from any form of future development or human disturbance that would degrade its ecological value.

1.6. The Hurlburt Field Explosive Training Range is only permitted for the use of demolition training, or emergency disposal of hazardous munitions (EOD only). This area is not defined as an "Active range", or a "Military range". The use of small arms ammunition is not authorized on the Hurlburt Field Explosive Training Range. Expended or unused munitions that are not recovered and disposed of properly are considered a solid waste under the 40 CFR Parts 260 thru 266 and 270--Military Munitions Rule. Violation of this policy will result in fines imposed by the Environmental Protection Agency under the Resource Conservation and Recovery Act.

1.7. The senior explosive demolition qualified individual on the range will assume the duties of the Range Safety Officer (RSO) or a designated qualified person. The RSO is responsible for overall safety on the range.

2. Explosive Limits.

2.1. The maximum amount of explosives per detonation will not exceed 100 pounds. Net Explosive Weight (NEW). NEW will be calculated using TNT equivalency. (See Attachment 7 for TNT equivalencies for select military explosives and calculations.)

3. Personnel Limits.

3.1. A minimum of two explosive demolition qualified personnel are required for any explosive operation.

3.2. When transporting explosives the maximum number of personnel shall not exceed the capacity allowed in the crew compartment of the vehicle transporting explosives.

4. Equipment Requirements.

4.1. Radio communication with Hurlburt Field control tower and 1 SOCES/CED operations section.

4.2. Four each Class-A water extinguishers.

4.3. First Aid Kit/Trauma Kit.

4.4. Two each Range Flags (IAW T.O. 11A-1-42). (Sign-out from 1 SOCES/CED).

4.5. Bullhorn. (Sign-out from 1 SOCES/CED).

5. Location of Operation.

5.1. The Hurlburt Field Explosive Training Range is located west of the Hurlburt Field Munitions Storage Area, MGRS 16R EU 25547 65888 (Datum WGS84). All demolition shots will be placed in the center of the range between the markers.

5.2. All training vehicles, inert ordnance items and the robotics training facility located on the range are for EOD use only.

6. Safety Precautions.

6.1. Do not detonate fragment-producing munitions on the range. Shaped charges and water charges are allowed as long as they are projected in a safe direction.

6.2. During emergency disposal operations involving fragment producing munitions (EOD only), post guards to deny access to Eglin Range Road 253. Guards will be posted at the intersection of Road 668 and 253 (MGRS 16R EU 24755 65392) and at the second bridge reached by traveling north on Road 253 (MGRS 16R EU 25515 67080).

6.3. Do not use or detonate pyrotechnic munitions without approval from 1 SOCES/CED operations. This includes: illumination, signaling, or fire producing munitions.

6.4. Do not conduct pit/trench-burning operations.

6.5. Demolition operations will be conducted as close to the center of the cleared demolition area as practical. Range center is marked by two wooden posts (Figure 1).

6.6. Red range flags will be flown at the east and west gate during all operations.

6.7. Range gates will be closed and locked during all explosive operations.

6.8. Do not conduct operations when electrical storms are within 5 nautical miles.

- 6.9. Do not conduct operations if wind speed exceeds 15 miles per hour.
- 6.10. The RSO will control all initiating devices.
- 6.11. Coordinate initiation of all detonations with the Hurlburt airfield control tower. Request and receive clearance prior to initiating charges and notify tower when complete. Tower coordination is not required for explosively powered EOD tools or if only initiating blasting caps.
- 6.12. Prior to the start of any operation, a safety briefing and risk management assessment will be conducted.
- 6.13. Check fire conditions prior to operations. Fire trucks must be standing by in very high and extreme conditions.
- 6.14. No Electro Magnetic Radiation producing devices within 25 feet of Electro Explosive Devices.

NOTE: Fire Conditions can be obtained on the internet at the following site: http://flame.fl-dof.com/fire_danger/wims-report.html

7. Emergency Procedures.

- 7.1. If a fire occurs, immediately contact the Emergency Communications Center. Attempt to fight the fire as long as munitions are not involved and it is safe to do so.
- 7.2. If personnel are injured, perform first aid and request assistance if required.
- 7.3. Follow misfire procedures IAW applicable technical data.

8. Sequence of Events.

- 8.1. Notify the following agencies prior to operations:
 - 8.1.1. Public Affairs (Notify 3 days prior to an operation involving more than 10 pounds NEW).
 - 8.1.2. Weather (Request wind speed and if electrical storms are expected).
 - 8.1.3. Command Post.
 - 8.1.4. Clinic.
 - 8.1.5. Security Forces.
 - 8.1.6. Airfield Tower.
 - 8.1.7. Wing Safety.
 - 8.1.8. Munitions Control.
 - 8.1.9. Emergency Communications Center (Give quantity, class, route, description of vehicle, time of departure, and approximate arrival time when transporting class 1.1, 1.2, 1.3. Munitions or over 1,000 pounds of class 1.4 munitions).
- 8.2. Obtain all required equipment and explosives.
- 8.3. Secure gates and raise flags.
- 8.4. Place explosives in designated holding areas.

- 8.5. Prepare charges for initiation.
- 8.6. Obtain clearance from tower prior to all detonations (see paragraph 6.11).
- 8.7. Ensure personnel are at a safe distance IAW AFMAN 91-201 and the range is clear; sound the siren via the bullhorn prior to detonations to provide an audible warning.
- 8.8. Detonate charges.
- 8.9. Notify Tower when detonations are complete.
- 8.10. Search area for unexploded ordnance, munitions, and explosive residue. Remove all residue/trash from the range, and dispose of properly.
- 8.11. Repeat paragraph 8.5. through 8.10. for additional detonations.
- 8.12. Take down flag and secure gates. Stow equipment and return any unused explosives.
- 8.13. Contact 1 SOCES/CED operations to conduct post inspections of range.

WILLIAM P. WEST, Col, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFMAN 91-201, *Explosives Safety Standards*, 12 January 2011

AFPD -91-2, *Safety Programs*, 224 July 2012

T.O. 11A-1, *General Instructions - Disposal of Ammunition*

T.O. 11A-1-1-66, *General Instructions - Demolitions*

40 CFR Parts 260 through 266, and 270, *Military Munitions Rule (MMR)* UFC 3-340-02, *Structures to Resist the Effects of Accidental Explosions*. 60A-1-1-4, *Protection of Personnel and Property*, 10 May 2012

Prescribed Forms

None

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

EOD—Explosive Ordnance Disposal IAW— In Accordance With

NEW—Net Explosive Weight

RSO—Range Safety Officer

SOCES—Special Operations Civil Engineer Squadron SOW – Special Operations Wing

TNT—Trinitrotoluene

Attachment 2
RANGE CALLS

A2.1. Range Calls. Date: _____

The following agencies will be notified prior to Range explosive operations:

<u>AGENCY</u>	<u>PHONE</u>	<u>INITIALS</u>
PUBLIC AFFAIRS	4-7464 (FAX IN 3 DAYS PRIOR IF OVER 10 LBS. 4-6093)	
COMMAND POST	4-8100	
EMERGENCY COMMUNICATIONS CTR	4-6363	
CLINIC	1-3902/1-3149	
SECURITY POLICE	4-6423	
AIRFIELD TOWER	4-7495	
WING SAFETY	4-7496	
MUNITIONS CONTROL	4-2011	
BASE WEATHER	4-7423	

FIRE CONDITION: http://flame.fl-dof.com/fire_danger/wims-report.html

Attachment 3**PRE-OPERATIONAL PLANNING FOR USE OF HURLBURT FIELD EOD RANGE****A3.1. PRE-OPERATIONAL PLANNING FOR USE OF HURLBURT FIELD EOD RANGE.**

Date/time on Range: 01NOV11/0800-1200

RSO: MSgt John Doe

Team Chief: TSgt Billy Bob

Explosives: (*List of all explosives to be used to include quantity for each round*)

Total Explosives on range

10 ea. M112 Comp C-4

4 ea Caps, Blasting M7 Non Electric 4 ea Igniters Fuse Blasting M81

50 ft Fuse blasting time

Round 1

5 ea. M112 Comp C-4

2 ea Caps, Blasting M7 Non Electric 2 ea Igniters Fuse Blasting M81

25 ft Fuse blasting time

Round 2

5 ea. M112 Comp C-4

2 ea Caps, Blasting M7 Non Electric 2 ea Igniters Fuse Blasting M81

25 ft Fuse blasting time

1. The user of the Hurlburt Field EOD Range must conduct explosive operation IAW AFMAN 91-201 Explosive Safety Standards, AFPAM 90-902 Operational Risk Management (ORM) Guidelines and Tools, all applicable Technical Orders for equipment used and local operating instructions.
2. User is aware that all detonations on range are to be performed between the two signs in the middle of the range (Attachment 1).
3. No fragmentation producing detonations are allowed at any time.
4. Any single detonation with a 10 lbs or more net explosive weight quantity distance must notify 1 SOW Public Affairs 884-7464 3 days prior to date of detonation(s).
5. All personnel on range must be located at the earth covered bunker and use all available frontal and overhead protection at time of detonation.
6. The RSO is responsible to ensure Range Calls (Attachment 2) are made prior to any explosive operation.

Requester/RSO Signature

Attachment 4

DEMO RANGE ORM TEMPLATE

Table A4.1. DEMO RANGE ORM TEMPLATE.

OPERATIONAL RISK MANAGEMENT PLANNING WORKSHEET				
PLANNER		Date:		
MISSION/TASK: DEMOLITION TRAINING				
MISSION STEPS	POTENTIAL HAZARDS	RISKS LEVEL	CONTROLS	RESIDUAL RISK LEVEL
PLANNING	Inadequate	L M H	Ensure good internal planning is conducted IAW unit SOP. Thoroughly brief mission steps and cover what to do in case of emergency.	L M H
MISSION EQUIPMENT	Death or serious injury due to unfamiliarity with equipment or malfunction of equipment.	L M H	Ensure personnel are trained with all equipment being used during operation. Also check out equipment prior to operation to make sure it is in good working order.	L M H
TRANSPORT TO/FROM RANGE AND TRANSPORT EXPLOSIVES	Vehicle accident	L M H	Allow adequate time to obey all traffic laws, wear seat belts, and make sure explosives are properly strapped down or secured.	L M H
SEPARATION OF DEMOLITION MATERIAL	Failure to separate Blasting Caps from Explosives could cause	L M H	Use prepared permanent structures for proper safety distances.	L M H

OPERATIONAL RISK MANAGEMENT PLANNING WORKSHEET				
PLANNER		Date:		
MISSION/TASK: DEMOLITION TRAINING				
MISSION STEPS	POTENTIAL HAZARDS	RISKS LEVEL	CONTROLS	RESIDUAL RISK LEVEL
CRIMPING BLASTING/TIME FUZE TEST BURN	Premature detonation could occur due to improper crimping technique/test burn to close	L M H	Ensure all personnel crimping caps are trained and current or supervised if in upgrade training. Make sure caps are crimped away from other explosives, and test burns conducted 25ft downwind from other explosives.	L M H
SETTING/IGNITING CHARGES	Explosives could prematurely detonate and cause serious injury or death	L M H	Only essential personnel are to be present when setting charges or inserting caps. Do not force caps in place and follow all commands from RSO. Once charge is placed/ignited, walk with a purpose to bunker or awaiting vehicle.	L M H
LACK OF MEDICAL COVERAGE	Medics are not on site or lack of proper gear	L M H	Medical coverage is coordinated for training operations. Ensure multiple means of communication are available in case of emergency. During emergency disposal operations, Medics/First Responders will be on scene.	L M H

Attachment 5

DEMO RANGE OPORD TEMPLATE

A5.1. DEMO Range OPORD Template.

DEMO RANGE OPORD TEMPLATE

Demo Range OPORD Template.

PRE MISSION BRIEF		SAFETY BRIEF		CONTACT INFORMATION		ALT CONTACT INFO	
COMPLETED:		COMPLETED:		POC:		POC:	
				Phone:		Phone:	
Additional Personnel:				TIME START:		TIME END:	
VEHICLES							
6 PAX:							
BSERV:							
HUMVV:							
ATV:							
RANGE EQUIPMENT (SIGN OUT/IN FROM EOD)							
OUT				IN			
RANGE FLAGS:							
RANGE KEY:							
BULL HORN:							
RADIO #:							
SITUATION/ MISSION CONCEPT				TIMELINE			
SUMMARY							
RANGE EQUIPMENT REQUIRED (Minimum):				INDIVIDUAL PPE			
FIRE EXTINGUISHERS:	Y	N		ISA/OTV/PLATE CARRIER			
FIRST AID KIT:	Y	N		HELMET			
				EYE PROTECTION/EAR			
				GLOVES			
				UNIFORM:			
ADMINISTRATIVE ACTIONS							
PUBLIC AFFAIRS	884-7454			MUNITIONS CONTROL	884-2011		
*If over 10 lbs fax request 3 days prior to 884-8093				BASE WEATHER	884-7423		
COMMAND POST	884-8100			JACKSON GUARD	882-6233		
FIRE DEPARTMENT	884-6360			FIRE CONDITION: A B C D			
MEDICAL CLINIC	881-3902						
SECURITY FORCES	884-6423						
AIRFIELD TOWER	884-4795			EOD	884-7193		
WING SAFETY	884-7495						
1 SOCES/CED OPERATIONS REVIEW							
DATE RECEIVED	DATE REVIEWED	DATE SIGNED	DATE GO/NO-GO				
<p>* All range requests should be submitted at a minimum of 1 week prior to requested use date to the 1 SOCES/CED organizational email 1soces.cedeod@hurlburt.af.mil. You are not scheduled for the range unless you receive confirmation!</p>							

Attachment 6

LOCATION OF RANGE CENTER

Figure A6.1. Location of Range Center



Attachment 7

TNT EQUIVALENCY CALCULATIONS

Table A7.1. TNT Equivalency Table.

Explosive	TNT Weight Equivalent
Composition B	1.16
Composition C-4	1.37
H-6	1.38
PETN	1.27
RDX	1.46
TNT	1.00

A7.1. Above are explosives commonly used on the Explosive Training range. If other explosives are to be utilized that are not listed, contact 1 SOCES/CED Operations Section for TNT Equivalency weights.

A7.1.1. Items such as Military M1 Dynamite which have a TNT equivalency less than 1.00 will still be calculated using a TNT equivalency of 1.00. Never calculate intentional detonations using less than 1.00 TNT equivalency.

A7.2. Calculations.

A7.2.1. Below is an example of how to calculate TNT Equivalency:

10 Blocks of Composition C-4. Each block of C-4 weighs 1.25 pounds (NEW). C-4 has a TNT equivalency of 1.37 pounds. $10(\text{blocks of C-4}) \times 1.25 = 12.5 \text{ pounds (NEW)}$
 $12.5(\text{pounds NEW}) \times 1.37(\text{TNT Equivalency}) = 17.125 \text{ pounds (NEW TNT Equivalency)}$